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SUBJECT: FINNISH NUCLEAR SAFETY

REF: A. HELSINKI 499 B. HELSINKI 505

¶1. (SBU) On June 1, Finnish Foreign Minister Erkki Tuomioja told Ambassador Ware that Finland is willing to provide nuclear safety technology and assistance as part of the package of incentives the U.S., the EU3 and Russia intend to offer Iran to defuse the current standoff over Iran's weapon's program (ref A). Finnish nuclear safety experts are very familiar with Russian technology and hardware, and their nuclear storage and safety capabilities are generally considered to be among the best in the world. This cable offers an internal Embassy analysis of this Finnish capability.

¶2. (SBU) In the late 1970s and early 1980s Finland built two nuclear power plants (NPPs) using VVER pressurized water reactors from the Soviet Union. Finnish experts note that the reactor cores, reactor vessel, heat exchangers and turbines were well designed and engineered, but lacked control and safety systems that met Western standards, and had no containment. Finland had to render the VVER reactors safe by fitting western (mostly German, British and U.S.) control and safety systems to the Soviet power unit. Containment proved a gargantuan task. The Finns achieved the nearly impossible by designing and building the world's largest containment buildings to fit around the awkward Soviet apparatus.

¶3. (SBU) This thorough understanding of Soviet nuclear technology enabled the Finns to write the definitive rulebook for safe operation of VVER reactors. Finland's two Soviet reactors hold third and fourth place in the world in terms of capacity load factor ranking (the ability to operate safely and produce at nearly maximum output.) Finland's Swedish built reactors hold world ranking places one and two.

¶4. (SBU) Finland also has developed expertise in the operations of the other Soviet reactor design, the RBMK (reactor bolshoy moshchnosty kanalny - high-power channel reactor) - the "Chernobyl type" - reactor. A major NPP employing this design lies just across the Gulf of Finland at Sosnovyi Bor, west of St. Petersburg. Finland devoted considerable effort in the mid 1990s to develop safe operations procedures for this plant - which was clearly in Finland's own interest. This graphite-moderated boiling water reactor was originally designed for the production of plutonium, but as it produces a great amount of easily retrievable heat, the Soviets modified it for electricity generation. Since the design is inherently unstable, Finland cooperated closely in the international project to upgrade RBMK reactors and their operations procedures, alarm systems and radiation monitors.

¶5. (SBU) COMMENT: Whether or not the Russians would welcome

Finnish improvements to the reactor they intend to offer as part of the incentive package remains an unanswered question. However, from a political and technical perspective the Finns are well placed to make a timely, welcome contribution to the incentives package.

WARE